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FACEBOOK ADDICTION AND AGGRESSION: IS THERE A PROFOUND RELATION?

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ABSTRACT

The study intends to investigate the relation of Facebook addiction and aggression among college students, and to determine if there is gender specificity in their aggression levels. The Bergen Facebook Addiction Scale (BFAS) by Andreassen et al. (2012), which measures Facebook addiction in the areas of salience, tolerance, mood modification, withdrawal, conflict and relapse, and the Buss-Perry Aggression Questionnaire (BPAQ) of Buss and Perry (1992), which measures four forms of aggression (physical aggression, verbal aggression, hostility, and anger), were administered to 354 college students, followed by a focus group discussion involving 12 students. Correlation analysis was used to test the relationship of the variables, while t-test for independent samples was utilized to test the gender specificity of aggression. Content cloud analysis was also used to visually-display the emerging dominant words from the transcripts of the FGD. Analysis revealed moderate Facebook addiction and moderate tendencies of aggression among college students. Of the four forms of aggression, physical aggression was also gender-specific as noted on the higher level of tendencies in males. Facebook addiction and aggression among college students are positively related, $p < 0.01$. Content cloud analysis revealed that aggression in Facebook use stems from pronouncement of feelings, knowing and being updated with affairs from posts in the newsfeed, dis-inhibition from personal confrontation, and gaining friendships.

Keywords: *Facebook addiction, aggression, college students*

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INTRODUCTION

Technological advances are no longer shocking but are also simply expected. Today's society has different expectations for all types of relationships. Relationships are now different because the tools used to maintain peer-to-peer connections have undergone a vast alteration. The primary focus is on the Internet and, with that, the development of social media. Social media is a web-based technology that transforms how people communicate by enhancing interactive conversations (Cabral, 2008). This, in turn, confirms the notion that there is an emerging prominence of technology-related activities of the youth of today, further indicating greater interest and participation in the so-called *technocentric* life.

In recent years, there has been increased societal attention focused on the problem of aggressive behavior in students. Aggression refers to behaviors, covert and overt, designed to harm others through exploitation of relationships (Remillard & Lamb, 2005). By nature, it has as its goal the damaging of social status or self-esteem of the victim (Archer & Coyne, 2005; Remillard & Lamb, 2005). Example behaviors include spreading rumors, gossiping, and excluding or ignoring others (Archer & Coyne, 2005). Research has indicated that the terms relational, social and indirect aggressions exist in these times when social network like Facebook is rampant in usage.

Addiction to social networking occurs more regularly among younger than older users (Andreassen & Pallesen, 2013). People who are anxious and socially insecure use social networks like Facebook more than those with lower scores on those traits, probably because those who are anxious find it easier to communicate via social media than face-to-face. Interestingly, a study found that people who indicate "often" or "very often" on four or more of the statements may be experiencing addiction, with a surprising result: Women are at greatest risk towards social networking addiction (Chang, et al. 2013). A study found that when heavy social media users were asked to stop using the services for a month, some (though not all) experienced negative feelings related to the ban, including feeling cut off from the world and social isolation (Marche, 2012; Das & Sahoo, 2011; Loveridge, 2013). While most psychologists and social media experts agree that overuse of social network sites does not really reach the dangerous levels of true addiction, the release of dopamine that comes from online recognition can be habit-forming, and may even cause some to neglect important tasks like schoolwork and sleep (Dolliver, 2010; Kirschner & Karpinski, 2010; Lacida & Murcia, 2015). According to Nauert (2010), new priorities among children and youth, therefore, are hinged on the popularity of technology and connectivity. Most college students are not just unwilling, but functionally unable to be without their media links to the world.

In the Philippine setting, with the emergence of a multi-tasking lifestyle, the Filipino family used 10.9 hours per day in the consumption of media and 14 hours in utilizing technology (OMD Philippines, 2007). On the other hand, there are 29,890,900 Facebook users in the Philippines as of December 31, 2012 equivalent to 28.8 penetration rate. This marks the Philippines as the 8th top Facebook users in the Asian countries. The complete list of top ten Facebook users per penetration rate for the year 2012 in the

Asian countries and region include: Brunei (62.3%), Taiwan (57%), Hongkong (56.4%), Singapore (54.5%), Malaysia (46.6), Macao (36.3%), Maldives (34.7%), Thailand (26.4%), and Indonesia (20.6%). This shows that Facebook undeniably impacts in the history on earth (Marcial, 2013). As to social connections, the Internet has become an instrument to keep up and maintain relationships with close friends and close family members. However, it also creates new online, virtual relationships with strangers and acquaintances, thus forming “weak ties” that provide less social support than real relationships with family and friends – quite ironic on the fact that social networking among Filipino students becomes important in forming impressions of others (Marcial, 2013; Hechanova & Ortega-Go, 2014).

The ubiquity of social networking sites also raises the concern of overuse or addiction of social networking sites among college students and the notable aggressive behavior reported by various professors as well as the Guidance Office in their current study (Arendain, 2015). There is a concern about overuse of social networking sites and the degradation of behavior of students. Thus, this study is proposed.

METHOD

Research Design

This study will employ the mixed method type of research. The procedure for the gathering, analyzing and mixing of quantitative and qualitative research methods in a study to understand a research problem is the main goal of the mentioned method. Mixed method of research is very useful in focusing on the research questions that calls out for the contextual understandings of real life situations, perspectives that are multi-level and the influence of culture, those that need employing rigorous quantitative research assessing magnitude and frequency of constructs and rigorous qualitative research, exploring its meaning and to construct understandings, utilizing methods like interviews and investigation framing with theoretical and philosophical positions (Johnson et al., 2007).

Respondents

The respondents of this study are the UM Digos College students from the five departments. These include Business Administration Education Department, Teacher Education Department, Arts and Sciences Education Department, Information Technology Education Department, and Criminal Justice Education Department. From a total of 3,051 SY 2015-2016 students, 354 college students are chosen through stratified random sampling method. It is a method in order to come up with the accepted number of sample to represent the population (Levy & Lemeshow, 2013). Moreover, random sampling method can be used when the population is grouped into more or less homogeneous classes, that is different groups but have a relatively common characteristics, then each can be sampled independently by taking equal number of elements (Cochran, 1946). Table 1 shows the distribution of respondents.

Table 1. Table Showing the Research Participants

Department	N	n	Percent	Key Informants
Business Administration	987	115	32.49	3
Teacher Education	1,075	124	35.03	4
Information Technology	345	40	11.30	2
Arts and Sciences	156	18	5.08	1
Criminal Justice	488	57	16.10	2
TOTAL	3,051	354	100.00	12

Research Instruments

This research will utilize two standardized instruments as measures of addictive tendencies of Facebook use and aggression among college students. The use of standardized instruments will establish the reliability of the results of the study, since these are already validated by experts and have reported reliability coefficients in their usage. The Bergen Facebook Addiction Scale (Andreassen, et al. 2012) comprised of 18 items, wherein three items were divided into the six core features of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Each item is scored on a 5-point scale using semantic pairing of 1: Very Rarely and 5: Very Often. Higher scores indicate greater Facebook addiction. Reported Cronbach's alpha values were $\alpha=0.825$ for salience, $\alpha=0.836$ for mood modification, $\alpha=0.879$ for tolerance, $\alpha=0.857$ for withdrawal, $\alpha=0.838$ for conflict and $\alpha=0.833$ for relapse (Lacida & Murcia, 2015). On the other hand, the Buss-Perry Aggression Questionnaire is adopted from Buss and Perry (1992), which consists of 29 items, loaded into its four constructs: physical aggression, verbal aggression, anger, and hostility. Each item is scored on a 7-point scale using anchors of 1: *Very uncharacteristic of me* and 7: *Very characteristic of me*. Higher scores indicate frequent experiences of aggression. The internal consistency coefficients were as follows: physical aggression, $\alpha=0.85$; verbal aggression, $\alpha=0.72$; anger, $\alpha=0.83$ and hostility, $\alpha=0.77$, with the internal consistency being $\alpha=0.89$ (Buss & Perry, 1992). To contextualize the use of two questionnaires, they will be validated by a group of experts who held degrees in the field of psychology and guidance and counseling. However, since the reliability of the instruments is already established, no pilot-testing is required.

Data-Gathering Procedure

The researcher will ask permission in writing from the office of the Assistant Vice-President (AVP) of UM Digos College in the conduct of a survey among the college students. Upon her approval, separate communications will be sent to the respective Department Heads to allow the conduct of the survey. Arrangement will be done with them regarding the conduct of the research so as not to disrupt the classes. Upon their approval, the researcher will proceed in conducting the survey. Based on the computed sample respondent size, the researcher will randomly select students to

survey. The researcher will personally request the students to respond on the questionnaires provided to them. After which, the responded questionnaires will be retrieved immediately. The data gathered will be tallied, encoded in spreadsheet form, analyzed using appropriate statistical tools, and interpreted.

A further focus group discussion involving 12 college students was conducted in order to elicit responses with regards to some unidentified factors that might be useful in establishing the relationship of addictive tendencies of Facebook use and aggression among college students. A representative sample of 12 respondents was taken per department in order to ensure representation among the academic departments. The respondents were invited in the Guidance and Testing Center last September 12, 2015 for the conduct of the focus group discussion. Of the 12 respondents contacted, 11 personally came to participate. The 11 respondents expressed agreement in participating with the study by signing the informed consent, which was thoroughly explained by the researcher. The conduct of the focus group discussion warranted two things: (1) confirming the validity of the statistical results; and (2) determining other factors that might not be accounted in the survey instruments.

Data Analysis

Descriptive statistics (frequency and percentage) will be used to determine the relative distribution of the respondents in terms of gender and course. Mean will be used to determine the level of addictive tendencies of Facebook use, as well as the level of aggression among college students. Independent-sample t-test will be used to determine if significant difference exists in the aggression between male and female college students. Pearson product moment correlation, or simply Pearson r , will be used to determine if addictive tendencies to Facebook use and aggression have significant relationship. Lastly, content cloud analysis via www.wordclouds.com will be used to determine the dominant themes, words and phrases gleaned from the qualitative responses of the key informant interviews.

RESULTS

Profile of the College Students

This section outlines the results of the relative distribution of the college students of who participated in the survey. A total of 354 college students were involved based on computed sample size from the total population and distributed in terms of gender and course. Females were the dominant respondents of the study, accounting for 68.64 percent of the entire sample, while 31.36 percent of the sample represents the males. This means that the student population of UM Digos College were mostly females. The highest number of participants is enrolled under the Teacher Education Department who are taking either Bachelor of Elementary/Secondary Education or Bachelor of Technical Teacher Education, accounting for 34.75 percent ($n=123$). They are followed by BS Business Administration, Accountancy and Tourism Management students under the Business Administration Education Department, accounting for 32.49 percent

($n=115$); BS Criminology students under the Criminal Justice Education Department, accounting for 16.10 percent ($n=57$); BS Information Technology and BS Computer Engineering students under the Information Technology Education Department, accounting for 11.30 percent ($n=40$); and AB English, AB Political Science and BS Psychology students under the Arts and Sciences Education Department, accounting 5.37 percent ($n=19$).

Extent of Facebook Addiction of College Students

The following discussions focused on revealing the extent of addictive tendencies to Facebook use of college students in the six dimensions, namely: salience, tolerance, mood modification, relapse, withdrawal and conflict.

Table 2. Extent of Facebook Addiction of College Students

Variable	Mean	Verbal Description
Salience	3.04	Moderate
Tolerance	2.90	Moderate
Mood Modification	2.81	Moderate
Relapse	2.51	Moderate
Withdrawal	2.45	Low
Conflict	2.66	Low

Based on the descriptive statistics results, the college students' addictive tendencies to Facebook use in terms of salience was found to be moderate based on the obtained mean score of 3.04, described as moderate. Such extent of addictive tendency of Facebook use is due to the combined mean scores of the following items: "*Spent a lot of time thinking about Facebook or planned use of Facebook*", "*Thought a lot about what has happened on Facebook recently*", and "*Thought about how you could free more time to spend on Facebook*".

Tolerance was found to be moderate based on the obtained mean score of 2.81. Such extent of addictive tendency of Facebook use is due to the combined mean scores of the following items which the item with a highest mean score is "*Spent more time on Facebook than initially intended*", "*Felt an urge to use Facebook more and more*" and "*Felt that you had to use Facebook more and more in order to get the same pleasure from it*".

Mood modification was found to be moderate based on the obtained mean score of 2.90. Such extent of addictive tendency of Facebook use is due to the combined mean scores of the following items: "*Used Facebook in order to reduce the restlessness*", "*Used Facebook to reduce feelings of guilt, anxiety, helplessness, and depression*", and "*Used Facebook in order to forget about personal problems*".

Withdrawal was found to be low based on the overall mean score of 2.51. Such extent of addictive tendency of Facebook use is due to the combined mean scores of the

following items: *"Felt bad if you, for different reasons, could not log on to Facebook for some time"*, *"Become restless or troubled if you have been prohibited from using Facebook"* and *"Become irritable if you have been prohibited from using Facebook"* (with mean score of 2.38).

Conflict was found to be low based on the overall mean score of 2.45. Such extent of addictive tendency of Facebook use is due to the combined mean scores of the following items: *"Used Facebook so much that it has had a negative impact on your job/studies"*, *"Given less priority to hobbies, leisure activities, and exercise because of Facebook"* and *"Ignored your partner, family members, or friends because of Facebook"*. The result implies maintaining relationship with family and real life friends.

Lastly, relapse was found to be moderate based on the obtained mean score of 2.66. Such extent of addictive tendency of Facebook use is due to the combined mean scores of the following items: *"Decided to use Facebook less frequently, but not managed to do so"*, *"Tried to cut down on the use of Facebook without success"*, and *"Experienced that others have told you to reduce your use of Facebook but not listened to them"*.

Extent of Aggression of College Students

Conversely, the following discussions focused on revealing the level of aggression of college students in terms of physical aggression, verbal aggression, anger and hostility.

Table 3. Extent of Facebook Addiction of College Students

Variable	Mean	Verbal Description
Physical Aggression	3.05	Moderate
Verbal Aggression	3.76	Moderate
Anger	3.31	Low
Hostility	3.71	Moderate

Based on the descriptive statistics results, the college students' extent of physical aggression was found to be moderate based on the obtained mean score of 3.05. Such extent of physical aggression is due to the combined mean scores of the following items: *"Willing to resort to violence to protect his/her rights"*, *"Coming to blows because of people who pushed him/her so far"*, *"Becoming so mad that he/she has broken things"*, *"Hitting back if somebody hits him/her"*, *"Failing to control the urge to strike another person once in a while"*, *"Thinking of no good reason for ever hitting a person"*, *"Hitting another person given enough provocation"*, *"Threatening people he/she knows"*, and *"Getting into fights a little more than the average person"*.

Likewise, college students' extent of manifesting verbal aggression was found to be in the moderate level based on the obtained mean score of 3.76. Such extent of verbal aggression is due to the combined mean scores of the following items: *"Telling friends openly when disagreeing with them"*, *"Telling people of what he/she thinks of them when they*

annoy him/her", "Finding one's self in disagreeing with people", "Getting into arguments when people disagree with him/her" and "Being told by friends of being somewhat argumentative".

Moreover, college students' extent of aggression in the form of anger was found to be in the low level based on the obtained mean score of 3.31. Such low extent of anger is due to the combined mean scores of the following items: "Flaring up quickly but getting it over quickly", "Being an even-tempered person" "Letting irritation shows when frustrated", "Sometimes feeling like a powder keg ready to explode", "Being thought by some of my friends as a hothead", "Having trouble controlling temper" and "Flying off the handle sometimes for no good reason".

Lastly, the college students' extent of aggression in terms of hostility was found to be in the moderate level based on the obtained mean score of 3.71. Such extent of hostility is due to the combined mean scores of the following items: "Wondering what people want when they are especially nice", "Wondering why sometimes he/she feels so bitter about things", "Knowing that "friends" talk about me behind his/her back", "Being eaten up with jealousy sometimes", "Feeling that people are sometimes laughing at him/her behind his/her back", "Being suspicious of overly-friendly strangers", "Feeling of being gotten a raw deal out of life at times" and "Thinking of other people as always getting the breaks".

Gender Gap of Aggression among College Students

A test of difference was utilized to determine whether aggression is gender-specific. Results on table 4 revealed that of the four forms of aggression exhibited by college students, physical aggression was found to significantly differ between males (\bar{x} =3.45) and females (\bar{x} =2.88), having a t-value of 4.453, $p < 0.01$. Looking on the mean scores between the two groups, males were found to display higher physical aggression than females. This finding corroborates the earlier pronouncements of the study of Desmarais et al. (2012), Sell, Hone and Pound (2012), Espelage et al. (2013) and Hamby and Turner (2013), who all pointed out that physical aggression, and even physical violence, are attributed to the fact that men have a culture of masculinity, which is related to machismo, hostility and violence.

Table 4. Test of Difference Showing the Significant Variance of the Forms of Aggression When Respondents are Analyzed by Gender

Variable	Gender	Mean	t	p value	Decision on H ₀
Physical Aggression	Male	3.45	4.453	0.000	Reject
	Female	2.88			
Verbal Aggression	Male	3.90	1.553	0.121	Accept
	Female	3.70			
Anger	Male	3.37	0.574	0.566	Accept
	Female	3.29			
Hostility	Male	3.72	0.105	0.916	Accept
	Female	3.70			

Significant if $p < 0.05$

On the other hand, no significant differences were noted to exist in college students' manifestations of aggression in the three remaining forms: verbal aggression ($t=1.553$, $p = 0.121$), anger ($t=0.574$, $p = 0.566$) and hostility ($t=0.105$, $p = 0.916$). This means that the mean scores of males and females in these forms of aggression are very proximal and close to one another, and are at the same level. Thus, it is safe to say that verbal aggression, anger and hostility do not significantly differ among college students.

Relationship between Facebook Addiction and Aggression among College Students

Furthermore, displayed in table 5 is the result of the relationship between addictive tendencies of Facebook use and forms of aggression among UM Digos College students. As evident in the table, bivariate correlation analysis revealed that overall Facebook addiction significantly and positively related with the four forms of aggression, which portends a linear association of the variables and that an increase of the Facebook addiction by one unit would likely be resulting to an increase of physical and verbal aggression, hostility and anger simultaneously, holding other variables constant.

Table 5. Test of Relationship Showing the Correlation of Overall Facebook Addiction and the Forms of Aggression of College Students

Independent Variable	Dependent Variable	Pearson r value	p-value	Decision on H₀
Overall Facebook Addiction	Physical Aggression	0.372**	0.000	Reject
	Verbal Aggression	0.215**	0.000	Reject
	Anger	0.267**	0.000	Reject
	Hostility	0.382**	0.000	Reject

** Significant at 0.05 level

Looking at each form of aggression, the r value for the correlation between Facebook addiction and physical aggression was 0.372 with a p-value of 0.000, which is significant at 0.05 level. This implies that overall Facebook addiction significantly and positively related with physical aggression. This conforms to the findings of Kim et al. (2008), citing that preoccupation with the use of social media like Facebook results to higher tendencies of aggression and impulsive behaviors leading to the intention of hurting someone physically or do the actual commission of the action.

Moreover, the r value for the correlation between Facebook addiction and verbal aggression was 0.215 with a p-value of 0.000, which is significant at 0.05 level. This implies that overall Facebook addiction significantly and positively related with verbal aggression. This is concomitant with the pronouncements of Banerjee et al. (2009), averred that too much Facebook use leads to exposure as well as commission of aggressive, intentional acts or behavior that can be relayed verbally or by chat, since

electronic forms of contact like Facebook seem to present endless opportunities to do the harassment, insult, denigration, impersonation, exclusion and defaming other persons online (Willard, 2006). Joinson (1998) coins the term '*online dis-inhibition*' as a consequence of online anonymity, which may lead to *de-individuation* (Zimbardo, 1969) and can foster aggressive behaviors (Ko, et al., 2009). In adolescents, verbal aggression has been associated with addiction from internet as well as its social media (Ko, et al., 2009). This process may be particularly problematic for adolescents as their cognitive control capabilities may not be adequately developed (Casey, et al., 2005).

In the same way, the r value for the correlation between Facebook addiction and anger was 0.267 with a p-value of 0.000, which is significant at 0.05 level. This implies that overall Facebook addiction significantly and positively related with anger. The findings can be made true with the results of the study of Weinstein and Lejoyeux (2010), who also claims that excessive access to social media is can cause too much problem when it simply becomes more compulsive, the daily life activities are interfered and when a person cannot control it anymore. Withdrawal is accompanied with this type of number which includes tension, feelings of anger and depression when access is unavailable, excess usage tolerance usage (including seeking better equipment and more hours usage) and adverse consequences (arguments, poor achievement, isolation and fatigue). Anger is the most common problem when such Facebook usage is being deprive.

Lastly, the r value for the correlation between Facebook addiction and anger was 0.382 with a p-value of 0.000, which is significant at 0.05 level. This implies that overall Facebook addiction significantly and positively related with anger. This finding is concomitant with the findings of Zuckerman (2007), who found out that higher risk of addiction in social media corresponds to hostility. Likewise, in a recent study conducted by Zuo (2014), greater investment in Facebook was associated with more symptoms of hostility and sensitivity.

Content Cloud Analysis Results

A further qualitative analysis was also conducted using content cloud analysis, involving the results of the focus group discussion conducted. The reason in the conduct of the FGD is to cull out responses, statements and discussions that might be uncovered, which are necessary to support the previous statistical findings. Content clouds or word clouds are generated in the same manner as tag clouds but use input from a text other than blog tags (Ramlo, 2011).

The use of content cloud as visual representations of data can help organize and summarize research data. These representations can enhance the clarity and support for research findings (Dickinson, 2010). In a typical word cloud, tags from a website (or words from a document) are packed into a rectangular region in which font size indicates tag popularity (or word frequency) and font color indicates other useful information (Cui et al., 2010). The more prominent (larger text size) the word is in the word cloud, the more frequently it appeared in the text provided.

Facebook has also become a source of information of college students. However, it has become a breeding ground of misunderstanding, quarrel and arguments, due to lack of personal appeal and blatant disinhibition of students in interaction with others. When these happen, college students blatantly use Facebook as a mechanism of aggressive behavior. Moreover, Facebook becomes a tool for establishing and building friendships as well as displaying things and events. This means that the college students would use Facebook to seek for information, and be updated with current and trending events by looking at their posts in the news feed.

REFERENCES

- Andreassen, C. S., & Pallesen, S. (2013). Facebook addiction: A reply to Griffiths (2012). *Psychological reports*, 113(3), 899-902.
- Andreassen, C. S., Torsheim, T., Brunborg, G. S., & Pallesen, S. (2012). Development of a Facebook addiction scale 1, 2. *Psychological reports*, 110(2), 501-517.
- Archer, J., & Coyne, S. M. (2005). An integrated review of indirect, relational, and social aggression. *Personality and Social Psychology Review*, 9(3), 212-230.
- Arendain, J. (2015). *Addictive tendencies of Facebook use and aggression: A psychosocial influence on UM Digos College students*. Unpublished thesis: Rizal Memorial College. Davao City, Philippines.
- Banerjee, S. C., Greene, K., Krcmar, M., & Bagdasarov, Z. (2009). Who watches verbally aggressive shows? An examination of personality and other individual difference factors in predicting viewership. *Journal of Media Psychology*, 21(1), 1-14.
- Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of personality and social psychology*, 63(3), 452.
- Cabral, J. (2008). Is generation Y addicted to social media. *Future of Children*, 18, 125.
- Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: what have we learned about cognitive development?. *Trends in cognitive sciences*, 9(3), 104-110.
- Chang, F. C., Lee, C. M., Chiu, C. H., Hsi, W. Y., Huang, T. F., & Pan, Y. C. (2013). Relationships among cyberbullying, school bullying, and mental health in Taiwanese adolescents. *Journal of school health*, 83(6), 454-462.

- Cochran, W. G. (1946). Relative accuracy of systematic and stratified random samples for a certain class of populations. *The Annals of Mathematical Statistics*, 164-177.
- Cui, W., Wu, Y., Liu, S., Wei, F., Zhou, M., & Qu, H. (2010). Context-preserving, dynamic word cloud visualization. *IEEE Computer Graphics & Applications*, 30(6), 42-53.
- Das, B., & Sahoo, J. S. (2011). Social networking sites-A critical analysis of its impact on personal and social life. *International Journal of Business and Social Science*, 2(14).
- Desmarais, S. L., Reeves, K. A., Nicholls, T. L., Telford, R. P., & Fiebert, M. S. (2012). Prevalence of physical violence in intimate relationships, Part 2: Rates of male and female perpetration. *Partner Abuse*, 3(2), 170-198.
- Dickinson, W. B. (2010). Visual displays for mixed methods findings. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social & behavioral research* (Second ed., pp. TBD). Thousand Oaks, Calif.: SAGE Publications.
- Dolliver, M. (2010). *Social Networking: A Waste of Time?*. Retrieved from www.adweek.com.
- Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2013). The impact of a middle school program to reduce aggression, victimization, and sexual violence. *Journal of Adolescent Health*, 53(2), 180-186.
- Hamby, S., & Turner, H. (2013). Measuring teen dating violence in males and females: insights from the National Survey of Children's Exposure to Violence. *Psychology of Violence*, 3(4), 323.
- Hechanova, R., & Ortega-Go, R. (2014). The Good, the Bad and the Ugly: Internet Use, Outcomes and the Role of Regulation in the Philippines. *The Electronic Journal of Information Systems in Developing Countries*, 63.
- Hormes, J. M., Kearns, B., & Timko, C. A. (2014). Craving Facebook? Behavioral addiction to online social networking and its association with emotion regulation deficits. *Addiction*, 109(12), 2079-2088.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research*, 1(2), 112-133.
- Joinson, A. (1998). Causes and implications of disinhibited behavior on the Internet.

- Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The relationship between online game addiction and aggression, self-control and narcissistic personality traits. *European psychiatry*, 23(3), 212-218.
- Kirschner, P. A., & Karpinski, A. C. (2010). Facebook® and academic performance. *Computers in human behavior*, 26(6), 1237-1245.
- Ko, C. H., Liu, G. C., Hsiao, S., Yen, J. Y., Yang, M. J., Lin, W. C., ... & Chen, C. S. (2009). Brain activities associated with gaming urge of online gaming addiction. *Journal of psychiatric research*, 43(7), 739-747.
- Lacida, A. P., & Murcia, J. V. (2015). Influence of Facebook Addiction on Study Habits of College Students. Available at SSRN 2617158.
- Lampe, C., Vitak, J., Gray, R., & Ellison, N. (2012, May). Perceptions of Facebook's value as an information source. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 3195-3204). ACM.
- Levy, P. S., & Lemeshow, S. (2013). *Sampling of populations: methods and applications*. John Wiley & Sons.
- Marche, S. (2012). Is Facebook Making Us Lonely?. *Atlantic Monthly*.
- Marcial, D. E. (2013). Are you a Facebook addict? Measuring Facebook addiction in the Philippine University. *International Proceedings of Economics Development and Research*, 66, 12.
- Morris, M. R., Teevan, J., & Panovich, K. (2010). A Comparison of Information Seeking Using Search Engines and Social Networks. *ICWSM*, 10, 23-26.
- Nauert, R. (2010). Internet Addiction on the Decline in College Students. *Psychological Central*, Retrieved from <http://goo.gl/0k2UOg> last November 8, 2015.
- OMD Philippines (2007). *Survey on internet access and use by Filipino schoolchildren*. Retrieved from http://www.aijc.com.ph/survey_internet_access.pdf.
- Ramlo, S. (2011). Using content clouds to visually present Q methodology data and findings. *Human Subjectivity*, 9(2), 99-111.
- Remillard, A. M., & Lamb, S. (2005). Adolescent girls' coping with relational aggression. *Sex Roles*, 53(3-4), 221-229.

- Sell, A., Hone, L. S., & Pound, N. (2012). The importance of physical strength to human males. *Human Nature*, 23(1), 30-44.
- Weinstein, A., & Lejoyeux, M. (2010). Internet addiction or excessive internet use. *The American journal of drug and alcohol abuse*, 36(5), 277-283.
- Willard, N. (2006). *Cyberbullying and cyberthreats*. Eugene, OR: Center for Safe and Responsible Internet Use.
- Zimbardo, P. G. (1969). The cognitive control of motivation: The consequences of choice and dissonance.
- Zuckerman, M. (2007). The sensation seeking scale V (SSS-V): Still reliable and valid. *Personality and Individual Differences*, 43(5), 1303-1305.
- Zuo, A. (2014). *Measuring Up: Social Comparisons on Facebook and Contributions to Self-Esteem and Mental Health* (Doctoral dissertation, University of Michigan).